

Claims

5. A lubricating composition comprising at least about 30% by weight of at least one mineral oil, having a kinematic viscosity of less than about 8 cSt at 100°C, (A) from about 15% to about 40% by weight of at least one polymer, and (B) up to about 30% by weight of at least one fluidizing agent, provided that when  
10 the fluidizing agent is a poly $\alpha$ -olefin having a kinematic viscosity from about 2 to about 30 cSt at 100°C, then the poly $\alpha$ -olefin is present in an amount up to about 12% by weight, wherein the lubricating composition has a shear loss of less than about 15% in the 20 hour taper bearing shear test.

15 2. The composition of claim 1 wherein the polymer is selected from the group consisting of a ~~polyalkene~~ or derivative thereof, an ethylene- $\alpha$ -olefin copolymer, an ethylene-propylene polymer, an  $\alpha$ -olefin-unsaturated carboxylic reagent copolymer, a polyacrylate, a polymethacrylate, a ~~hydrogenated~~ interpolymer of a vinyl substituted aromatic compound and a conjugated diene, and ~~mixtures~~ thereof.

20 3. The composition of claim 1 wherein (A) is a polyalkene having a  $M_w$  less than 50,000.

4. The composition of claim 1 wherein (A) is a polyalkene derived from at least one olefin having from 3 to about 30 carbon atoms.

25 5. The composition of claim 1 wherein (A) is selected from the group consisting of a ~~polybutene~~, a ~~hydrogenated~~ polyisoprene, an ethylene- $\alpha$  olefin copolymer an ethylene propylene copolymer, and an ethylene propylene diene monomer interpolymer.

6. The composition of claim 1 wherein (A) is polyisobutylene.

30 7. The composition of claim 1 wherein the fluidizing agent (B) is at least one member selected from the group consisting of an alkylated aromatic hydrocarbon, naphthenic oil, poly $\alpha$ -olefins having a kinematic viscosity from about 3 to about 20 cSt at 100°C, and carboxylic acid esters.

5        8.        The composition of claim 1 further comprising (C) at least one antiwear or extreme pressure agent, (D) a total of at least about 1.5% by weight of one or more antioxidant, (E) up to about 5% by weight of at least one dispersant, or mixtures of two or more thereof.

10        9.        The composition of claim 8 wherein the antiwear or extreme pressure agent (C) is at least one member selected from the group consisting of a sulfur compound, a phosphorus containing compound, a boron containing compound, and mixtures thereof.

15        10.       The composition of claim 8 wherein the antioxidant (D) is selected from the group consisting of amine antioxidants, dithiophosphoric acid esters, phenol antioxidants, dithiocarbamates antioxidants, sulfurized Diels-Alder adducts, and mixtures thereof.

20        11.       The composition of claim 8 wherein the dispersant (E) is at least one reaction product of a hydrocarbyl substituted carboxylic acylating agent and an amine.

25        12.       The composition of claim 1 wherein the lubricating composition is a gear oil.

30        13.       A lubricating composition comprising at least about 30% by weight of at least one mineral oil, having a kinematic viscosity of less than about 8 cSt at 100°C, and an amount of a concentrate, sufficient to deliver to a fully formulated lubricant, (A) from about 15% to about 40% by weight of at least one polymer having an  $M_w$  from about 1000 to about 45,000 and (B) from up to about 30% by weight of at least one fluidizing agent, provided that when the fluidizing agent is a poly $\alpha$ -olefin having a kinematic viscosity from about 2 to about 30 cSt at 100°C, then the poly $\alpha$ -olefin is present in an amount up to about 12% by weight, wherein the lubricating composition has a shear loss of less than about 15% in the 20 hour taper bearing shear test.

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5        14. The composition of claim 13 wherein (A) is selected from the group consisting of a polyalkene or derivative thereof, an ethylene- $\alpha$ -olefin copolymer, an ethylene-propylene copolymer, an ethylene-unsaturated carboxylic reagent copolymer, a polyacrylate, a polymethacrylate, a hydrogenated interpolymer of an alkenylarene and a conjugated diene, and mixtures thereof.

10      15. The composition of claim 13 wherein (A) is a polyalkene having a  $M_w$  from about 1,500 up to about 40,000.

15      16. The composition of claim 13 wherein (A) is a polyalkene having an  $M_w$  from about 1,000 up to about 15,000.

20      17. The composition of claim 13 wherein (A) is a polyalkene derived from at least one olefin having from 4 to about 30 carbon atoms.

25      18. The composition of claim 13 wherein the fluidizing agent (B) is at least one member selected from the group consisting of an alkylated aromatic hydrocarbon, naphthenic oil, poly $\alpha$ -olefins having a kinematic viscosity from about 3 to about 20 cSt at 100°C, and carboxylic acid esters.

30      19. The composition of claim 13 wherein the fluidizing agent (B) is at least one member selected from the group consisting of poly $\alpha$ -olefins having a kinematic viscosity from about 3 to about 20 cSt at 100°C and an alkylated aromatic hydrocarbon.

35      20. The composition of claim 13 further comprising (C) from about 0.05% to 10% by weight of at least one antiwear or extreme pressure agent, (D) a total of at least about 1.5% by weight of one or more antioxidant, or mixtures of two or more thereof.

40      21. The composition of claim 13 further comprising an amount sufficient to deliver at least about 0.04% by weight nitrogen to the lubricating composition.

45      22. A concentrate comprising a substantially inert organic diluent, (A) at least one polymer and (B) at least one fluidizing agent wherein a lubricant formulated with the concentrate has a shear loss of less than about 15% in the 20-hour taper bearing shear test.

5        23. The concentrate of claim 22 wherein (A) is selected from the group consisting of a polyalkene or derivative thereof, an ethylene- $\alpha$ -olefin copolymer, an ethylene-propylene copolymer, an ethylene-unsaturated carboxylic reagent, a polyacrylate, a polymethacrylate, and a hydrogenated interpolymer of an alkenylarene and a conjugated diene.

10      24. The concentrate of claim 22 wherein (A) is polyisobutylene.

15      25. The composition of claim 22 wherein the fluidizing agent (B) is at least one member selected from the group consisting of an alkylated aromatic hydrocarbon, naphthenic oil, poly $\alpha$ -olefins having a kinematic viscosity from about 3 to about 20 cSt at 100°C, and carboxylic acid esters.

20      26. The concentrate of claim 22 further comprising one or more members selected from the group consisting of (C) at least one antiwear or extreme pressure agent, (D) an amount, sufficient to provide a total of at least about 1.5% by weight to a fully formulated lubricant, of one or more antioxidant, (E) up to about 5% by weight of at least one dispersant or mixtures of two or more thereof.

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